



Cultural Geographical Information System

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All transportation projects with Federal involvement must, by law, consider the effects on cultural resources. The Washington State Department of Transportation has a policy which requires all transportation projects in Washington, regardless of Federal involvement, to comply with the National Historic Preservation Act. Ensuring compliance involves searching records stored by the State's Office of Archaeology and Historic Preservation. The paper records became tattered and worn after repeated handling during these searches. Manual searches often result in an inadequate review process, with delays to the project development and inefficiency causing increased project costs.

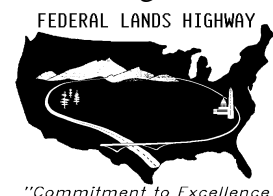
A partnership was formed between the Washington State Office of Archaeology and Historic Preservation and the Washington State Department of Transportation to create a Geographic Information System derived from the existing paper documentation. The Western Federal Lands Highway Division of the Federal Highway Administration joined this partnership in September 1997 to complete the database and take advantage of the Geographic Information System to assess the cultural resources along our Forest Highway Projects.

The Geographic Information System uses a Sun/Unix platform, ArcInfo 7.04 software, and a HP 650 plotter. A simple search mechanism provides results within a project area without compromising data security. A secure Web site is planned so that queries can be placed and results posted overnight.

The implementation of a Geographic Information System was proposed to streamline the process and improve efficiency. The technology enables the capture of information for both archaeological and historical properties in a comprehensive database. The digital data is collected in layers and overlaid on topographical features in an easy-to-read graphical display. The ability to combine layers and link multiple attribute tables is a powerful feature allowing comprehensive interpretation of cultural data. A significant



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amount of project development time is dedicated to the task of gathering and analyzing site data from the paper documents and transferring it to the tabular database and digitized locations. Successfully digitizing site locations into the system provides a key geographic link to supplemental information and provides a common format display for interpretation. The overlaying of data layers will permit relational analysis by milepost of cultural data with other features and planning initiatives. The intent of the partnership is to provide cultural resource information for the entire State of Washington to any approved individual or group involved with or responsible for compliance with the National Historic Preservation Act.

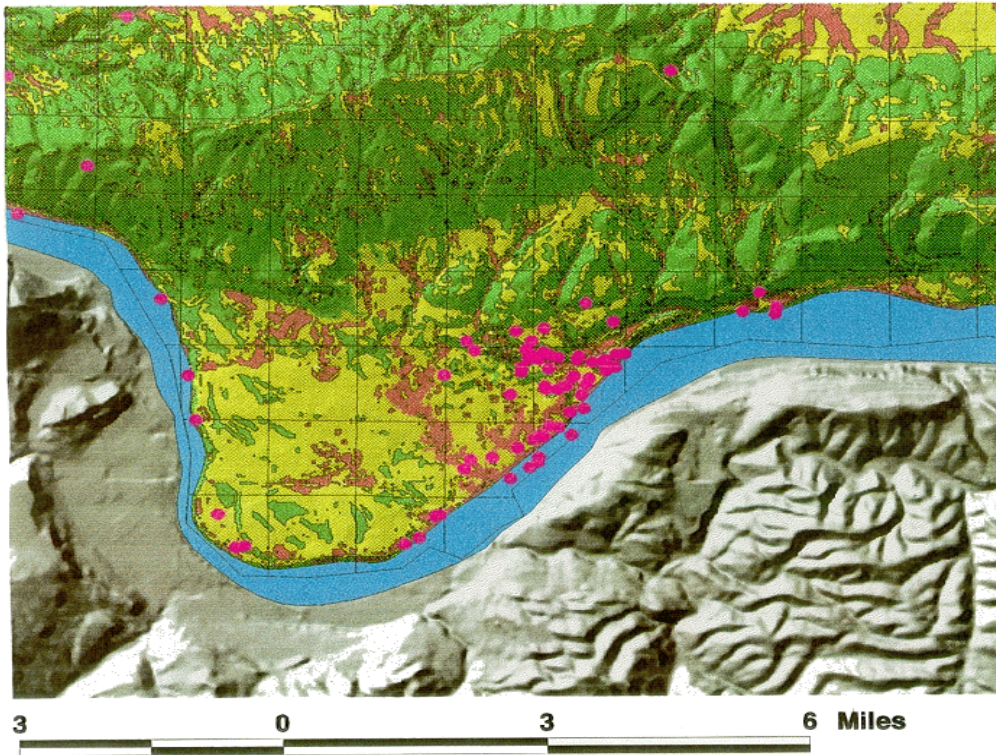
The architecture of the system allows data to be buffered so it can be shared without compromising the security or the confidentiality of the site locations. The data can be shared through tape output, FTP data exchange, query through a secure Web site, or zip disc. Non-Geographic Information System users can access tabular data in an overall system universal format (ASCII). Complex analysis of specific cultural data can be manipulated with specific location data from other natural resource layers for geology, soils, and hydrology. Additional layers can be implemented to incorporate information from other agencies, such as Department of Transportation mileposts, soils classifications, and water depth data. The ease of access to this data will encourage the use of cultural data earlier in the development planning process. Access to the data is exempt from public disclosure to protect the integrity of the sites. Procedures are in place to screen release of the data by the State Historic Preservation Officer. Collection of further data and registration of additional sites is also a responsibility of the State Historic Preservation Officer. The Geographic Information System is critical to the control of data release through a central distribution point for sharing and collecting data. It also provides the flexibility to be compatible with a variety of applications for analysis by the approved clients.

Growth of the system depends on the Office of Archaeology and Historic Preservation's ability to sustain the current development status, add and update data as needed, assure data protection and confidentiality, and continue to encourage partnerships and support from outside agencies. To this end, the following suggestions have been identified.

- ◆Continue producing data in formats compatible with a variety of models and scales.
- ◆Provide data to comply with Washington State Growth Management Act.
- ◆Share non-specific location and descriptive data as a planning tool.
- ◆Incorporate other data sets available within the Office of Archaeology and Historic Preservation.
- ◆Expand links to other relational data bases under development.
- ◆Encourage exchange with other States and agencies.
- ◆Expand a client list and advertise system development and expansion.
- ◆Attract new partners and clients.
- ◆Provide more complex data analysis incorporating data sets from other agencies.
- ◆Evaluate possible sustainable funding alternatives.
- ◆Offer training to partners and contributing agencies.
- ◆Expand networking opportunities.
- ◆Market the availability of this Geographic Information System.
- ◆Continue upgrading and capacity building to accommodate growth.

The products generated from the Cultural Resources Geographic Information System will benefit many Federal, State and local agencies by providing timely, and accurate information about cultural resources in Washington State. The information is displayed, geographically related to other features, in an easy-to-understand representation, and descriptive tabular data can be provided. The following samples of the outputs from the Geographic Information System are examples of a local jurisdiction planning request and a major highway construction request.

Archaeological Model, Klickitat County



- Archaeological Sites
- Sections
- Columbia River
- Model Probabilities
- High
- Medium
- Low

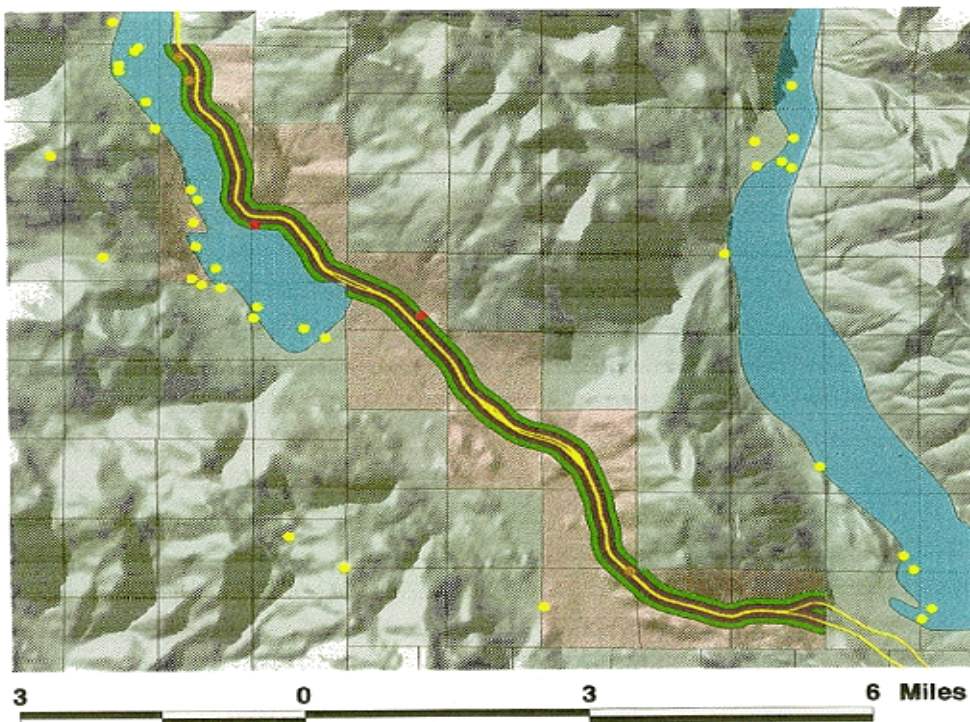
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DOT I-90 Corridor Study

Keechelus Lake Section



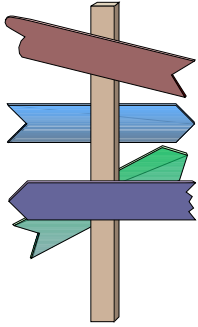
- Archaeological sites
- Outside buffer
- Within 400' buffer
- Within 800' buffer
- I-90
- 400' buffer
- 800' buffer
- Lakes
- DOT study area
- Sections

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ROAD SIGNS



I'll do the very best I know how—the very best I can; and I mean to keep doing so until the end. If the end brings me out all right, what is said against me won't amount to anything. If the end brings me out wrong, ten angels swearing I was right would make no difference.

- Abraham Lincoln

We wish to thank all the individuals who have contributed articles for previous newsletters. If you are aware of a new technology, (or a fresh spin on an old one) please jot down your ideas and submit them via e-mail to me at the address below. Or, if you have an aversion to writing, just donate 15 minutes of your time for an interview (either by phone or in person), and I'll format the information for you. You can then review the article for accuracy (via e-mail or hard copy) and upon publication, you'll become famous in a matter of days. Remember, although we cater to road-related technology, ANY new technology information is welcome. Please send all submissions to Kristi Swisher. If you have questions, you may contact Kristi at (360) 696-7572. Be sure your name, title, and phone number are the way you want them to appear in the article. Articles are subject to editor/layout approval and may be condensed if space is limited.

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